Joint Meeting of the House Standing Committees on Commerce and Transportation

Automated Vehicles

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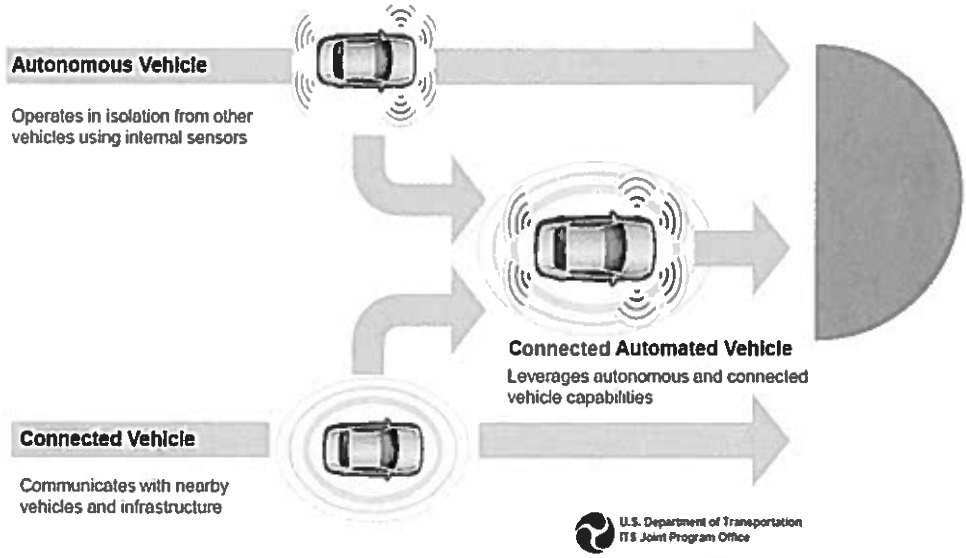
Connected Automation for Greatest Benefits



NHTSA Automation Levels

- **Level 0: No Automation** (but can be Connected)
- **Level 1: Function-Specific Automation**. Systems independently operated, can individually be automated. Ex: Electronic Stability Control, Adaptive Cruise Control, lane keeping, automatic braking
- **Level 2: Combined Function Automation.** Two or more safety-critical systems are automated; can be hands-off-wheel AND feet-off-pedals simultaneously, but driver must be ready to take control. Ex: SuperCruise, Traffic Jam Assist
- **Level 3: Limited Self-Driving Automation.** All safety-critical systems automated. Driver does not have to constantly monitor road, but needs to be available to take control with advanced warning.
- **Level 4: Full Self-Driving Automation.** All systems and monitoring completely automated. Occupants optional.

Public Act 231 of 2013

- Expanded eligibility of "Manufacturer" License Plate
  - Technology Companies
  - Automotive Suppliers
  - Universities
- Requires Licensed Operator
- Restricted Automated Driving to Testing only
- Fourteen entities received licenses specifically indicated for AV's
  - Continued use by other entities already eligible
- Required Legislative Report

Private Sector Activity

- Private sector work
  - "Google cars" built in Michigan (Rousch)
  - Ford – fleet of 30 vehicles testing on public streets
  - GM – testing on road
  - Continental – testing on Upper Peninsula track, on-road
  - Toyota – Developing
  - Ricardo – developing truck technology
  - Denso – researching technology, on-road testing
  - Valeo – developing, on-road testing
- Many expanding research and development in California

Michigan Public Sector Activity

- MDOT, MDOS national leadership roles
  - AASHTO Connected/Automated Vehicle Executive Leadership Team
  - AASHTO/USDOT Vehicle-to-Infrastructure Deployment Coalition
  - AASHTO Automated Vehicle Licensing
  - TRB Road Vehicle Automation Committee
  - NCHRP Impacts of Connected and Automated Vehicles on Transportation Agency
- TARDEC
- Oakland County Connected Vehicle Task Force
- City of Detroit Smart City application

The MTC: Building a Mobility Ecosystem

A public/private R&D partnership that will lead a revolution in mobility and develop the foundations for a commercially viable ecosystem of connected and automated vehicles

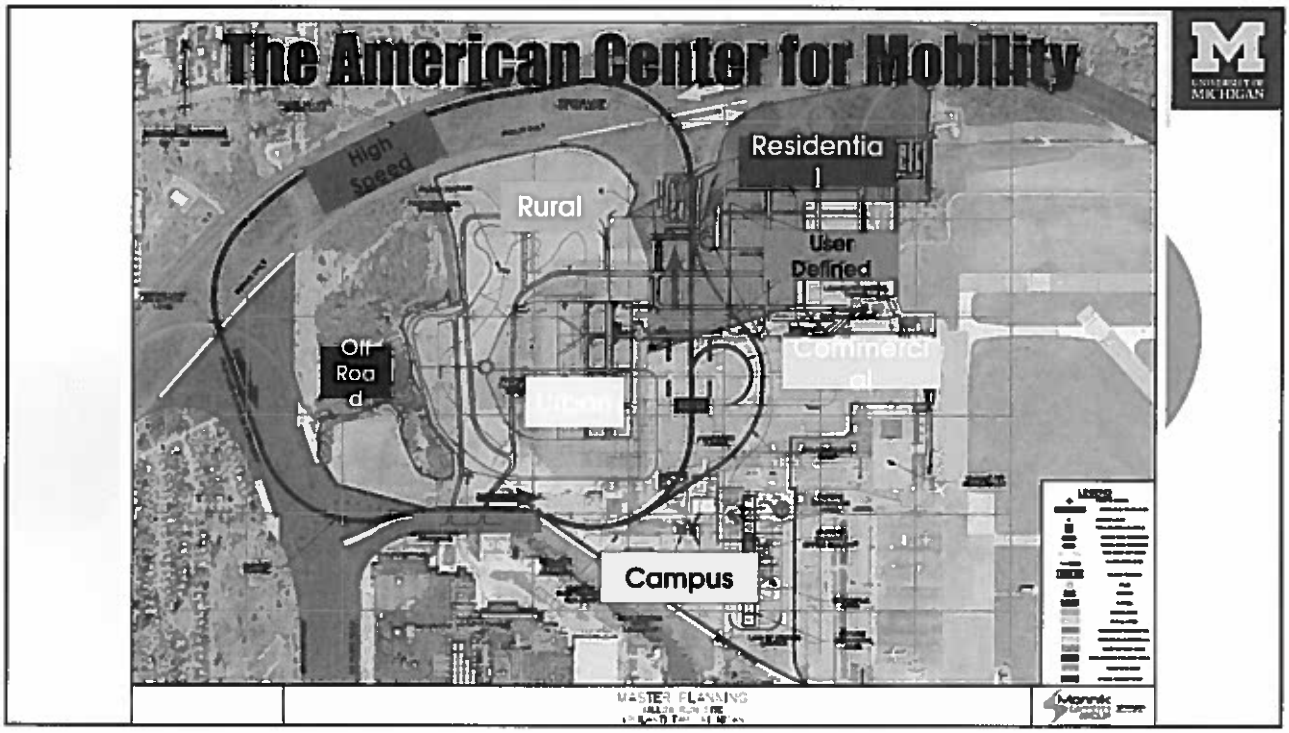
Tele-communications • Smart Parking • Pavement Systems • Cyber Security • Traffic Control Systems
Big Data Management • Federal, State, Local Policy • Public Transportation • Freight
Components and Systems • Urban Planning • Insurance

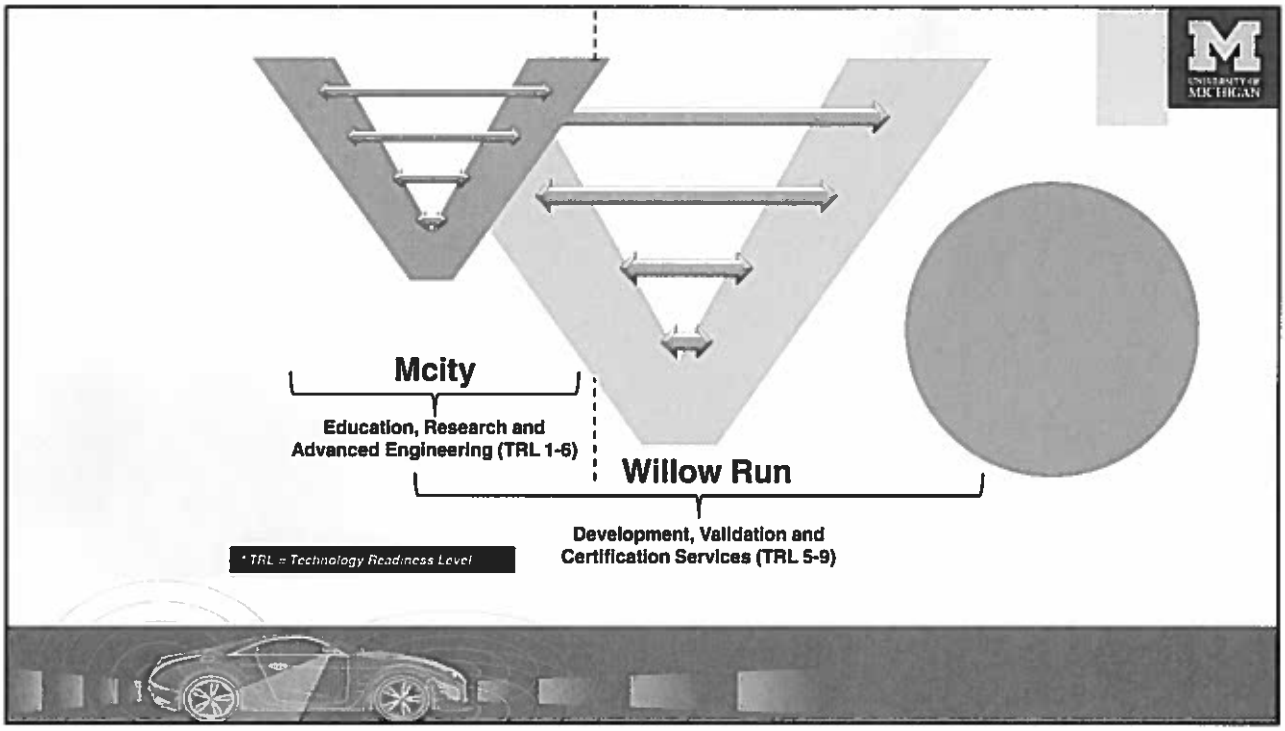
MTC 2016 Leadership Circle

Leadership Circle Members

Ford
GM
TOYOTA
HONDA
DELPHI
BOSCH
NISSAN
ECONOLITE
QUALCOMM
DENSO
MOBILITY TRANSFORMATION CENTER
With Support From
MDOT
ITERIS
verizon
StateFarm
xerox
LG
NAVISTAR


PORT HURON TOWNSHIP
V2 Technology Testing: 2016


The American Center for Mobility
High Speed
Rural
Residentia l
User Defined
Off Roa d
Campus
MASTER PLANNING



The American Center for Mobility - Summary

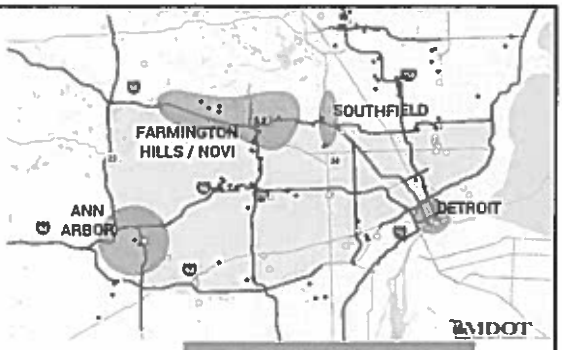
- Connected and Automated Vehicle (CAV) technology, including connected infrastructure, will revolutionize the transportation of people and goods in the next 5-10 years
- If implemented purposely, these technologies can simultaneously increase safety and mobility, and decrease energy use and emissions on a national scale
- Significant technical and policy challenges remain to be solved, including methods for safe testing, validation, and verification
- A combination of simulation, track testing, and on-road testing will be required to validate these systems sufficiently for safe, efficient, and effective deployment
- Collaboration of government, industry, and academia will be required to address these challenges and develop real-world products to maximize benefit for society
- University of Michigan has established a uniquely-successful PPP (MTC) and built a small-scale research, simulation, and education facility (Mcity, now in heavy demand)
- Numerous countries are acting to ensure their auto industries are at the forefront, and have built or are planning national-scale CAV testing facilities including Sweden, Korea, China, Japan, and likely others

Other "auto" countries are building facilities

What are other states doing?

Why Michigan?

- Greatest concentration of the auto industry in the world
- Adjacent to university mobility initiatives
- Integrated with a forward-looking state DOT and government
- Unique site with both iconic and tangible qualities
  - Surrounded by connected infrastructure
  - Home of the Arsenal of Democracy
  - Co-located with commercial airport to facilitate travel
- More mobility-related assets than any other region



The Future

- Encourage technology development in Michigan
  - State and private competition fierce
- Strong partnership with legislature
- Move to open operation beyond testing on public roads.
- Amending the Michigan Vehicle Code to address issues like following distance in light of the technology and potential.
- Provide consumer information on technology
- Continue to engage in federal discussions to shape regulations and present the Michigan perspective.